

## ANALYSIS OF THE FACTORS AFFECTING THE SALES IN THE AUTOMOTIVE INDUSTRY<sup>1</sup>

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**Abstract:** In all developed and developing countries of the world, the automotive industry is regarded as a locomotive sector with strategic importance in terms of the inputs used in the production, connections between the sectors, and its contribution to employment. With the rising international competition, the companies in the automotive industry have come to perform significant portions of their production in different geographical regions outside their mainland. While the major issue in the past was the price competition in this industry, today the product diversity, physical equipment, appearance and quality have also become prominent parameters in addition to the prices. The R&D expenses have been getting increasingly important in the industry which is marked by a fierce competition on an international scale, and the R&D works focus on the use of alternative fuels, safety, lightness, environmental friendliness and fuel efficiency. On the basis of the data from the Turkish Statistical Institute-Press Release / Road Motor Vehicles, variables for the period of 2002-2015 were determined and examined; the data acquired in the research were analyzed through the E-Views 8.0 software, and the factors affecting the sales to the greatest extent were determined through regression and correlation analyses. Accordingly, the total vehicle sales increase every year by 2.1 million in comparison with the previous year; this increase in sales is estimated to include 1.1 million automobiles, 52 thousand minibuses and 27 thousand buses; the sales of diesel-fueled automobiles increase the total automobile sales by 4.15 units, and the sales of LPG-fueled automobiles and the sales of gasoline-fueled automobiles influenced the total automobile sales by 2.63 and 2.17 units, respectively.

**Key Words:** Road Vehicle Tools, Automotive Industry, Automotive Industry, Diesel

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## **INTRODUCTION**

With a turnover of around 2 trillion Euro, with an expenditure of 85 billion Euro for R&D and production purposes, with a contribution of more than 433 billion Euro to the tax revenues in the invested countries, with a direct employment volume of more than 8 million people, and with an indirect employment volume of more than 50 million people; the automotive industry, which is one of the sectors getting the biggest investments of the world, would rank the 6th biggest economy if it was included as a country in the ranking of the world economies, and this industry is run by 50 companies producing motor vehicles in 20 countries around the globe (BSTB, 2013: 7-8)

The automotive industry functions as the locomotive of the economy in virtually all developed countries, and 70% of its total production is made up of automobiles. This shows the dominant role of the automobile sales within the automotive industry in the world economy (Onat, 2007: 3).

The automotive industry occupies an important place in the Turkish economy in terms of many variables, especially in that it has an influence of forward linkage, that there is a high elasticity of substitution between domestic products and imported goods, and that parameters related to the industry directly influence

the balance of current accounts (Aktaş, 2007: 151).

## **THEORETICAL FRAMEWORK**

Yeltin (1999) states that the automotive industry is the leading sector with strategic importance for the country; that it provides a high added value to the economy; that it constitutes a reliable and feasible source of tax; that it is divided into two basic sections, namely the main industry and the side industry, and that the small and medium sized enterprises (SME), which occupy a large part of the side industry, give dynamism to the economies and are in interaction with diverse sectors.

Arslan (2003) suggests that the brand is usually the determining factor in purchasing automobiles; that other variables such as family, social status and advisory groups also influence the purchasing decisions of the consumers; that the need for automobile is the driving force behind the purchasing behavior; that the price is the determinant in the purchasing decision in the short term; that variable usage expenses such as fuel and repair are not exclusively determinant in the long term; that the consumers are inclined towards fuel-efficient vehicles in the medium term, and that fixed expenses such as insurance and tax have more influence on the demand than variable expenses have.



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In their study, Güngör and İşler (2005) states that the automobile industry present to the consumers different brands and models with also quite different physical equipment and appearance; that the features that consumers look for in automobiles are diverse, and that the consumers have difficulty in making their decisions due to the abundance of options and criteria. The authors propose the solution of Analytical Hierarchy Approach (AHA) to the problem of automobile selection and note that the AHA takes into consideration the ambiguous subjective values of consumers as well as objective criteria.

Lee (2006) states that there is a very close relation between the second-hand automobile markets and the new automobile markets; that the second-hand automobile markets have some peculiar features although they are dependent on the new automobile markets to a certain extent; that the demand for second-hand automobiles, provision of which is not flexible and which are influenced by non-market factors, is at least as flexible as the demand for new automobiles, and that the prices of the second-hand automobiles are difficult to estimate since their prices are much more variable in comparison with the new automobile prices.

In his study which examined the development of the automotive industry, one of the locomotive sectors in Turkey as well as in the

world, before and after the Customs Union (CU), Aktaş (2007) notes that while the Turkish automobile users had only those automobiles produced by only several companies before the CU, they met various brands and models after the CU and led to a boom in the industry, and that the financial crises arising from the changes in the conjuncture and the subsequent economic policies caused fluctuations in automotive import and export. The author used time series of price index variables for automobile export and import and examined whether the errors were influenced by an ARCH effect, i.e. whether the variance of the error terms were constant or not.

In their study, Asilkan and Irmak (2009) state that second-hand automobiles are among the most demanded durable products in all countries of the world, and that the current prices in the market and the future prices are always a matter of interest. The authors attempted to estimate the future prices of second-hand automobiles through the method of artificial neural networks. The obtained results were compared with the results acquired through the analyses of time series, and it was noted that the artificial neural networks could be successfully used in estimating the future prices of second hand automobiles.

In his study, Bulunmaz (2011) states that in the contemporary world with the incredibly rapid technological developments in com-



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mercial and social terms, the desires and needs of consumers increasingly change; that the businesses are in search of alternative ways to meet and satisfy the consumers' expectations and needs; that the Internet, a part of our lives with all its positive and negative aspects, leads to the elimination of all the barriers between the producer and the consumer; that there is an emerging structure in which the consumers can simultaneously state their opinions in all stages related to the product or service and take an active part in the process, and that the social media as an active area of the Internet is also an arena where the business world develops its strategies for brand values. In this study, the author investigated the use of social media in the automotive sector and analyzed the ways in which Fiat, an automotive company, used the social media.

Güven and Öz (2012) conducted a research through the use of questionnaire technique on a sample that included 589 automobile owners from Turkey and Azerbaijan. The authors used the independent-samples t-test and tested the hypotheses through t-test. The study found that in today's world in which automobilization is perceived as one of the indicators of development, automobiles have become one of the vital needs, rather than luxury consumer products. Certain differences were found between the respondents from both countries. The study discovered that the respondents from these two countries

attributed different levels of importance to the factors of the age of automobile, country of production, service and spare part availability, engine power, fuel efficiency, price and tax while no significant differences were found between the automobile users of both countries in terms of the importance attached to automobiles' environmental friendliness, appearance, ease in selling as second-hand, road holding, safety criteria, brand, model, robustness, image and color.

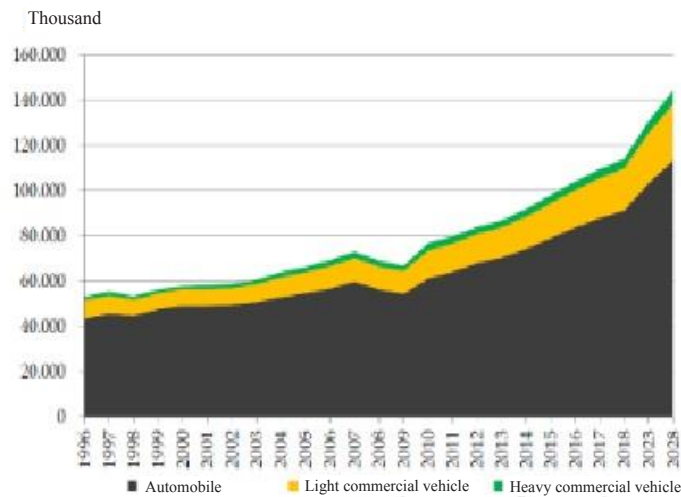
### ***SITUATION of the AUTOMOTIVE INDUSTRY IN TURKEY and in the WORLD***

Within the automotive industry, which is divided into automobiles, light commercial vehicles and heavy commercial vehicles in the main industry, the sub-group of automobiles has the biggest portion in terms of the number of products and its share in the trade. The sub-group of automobiles, which constituted around 81 percent of the world automotive market in 2012, is followed by light and heavy commercial vehicles. Projections of future indicate that the share of light and heavy commercial vehicles in the automotive industry will increase, and the share of automobiles will decrease although they will sustain their dominance in the industry. It is estimated that the share of automobiles in the industry will decrease to 78.6 by 2028 (Graphic.1). The increasing importance of the group of commercial vehicles in the automo-



tive industry in the future is considered as an opportunity for those countries with higher

competitive power in the production of commercial vehicles.



(%)	2012	2018	2023	2028
<i>Automobile</i>	<i>81.2</i>	<i>80.0</i>	<i>79.1</i>	<i>78.6</i>
<i>Light Commercial Vehicle</i>	<i>15.2</i>	<i>16.3</i>	<i>16.9</i>	<i>17.2</i>
<i>Heavy Commercial Vehicle</i>	<i>3.5</i>	<i>3.7</i>	<i>4.0</i>	<i>4.1</i>

**Graphic 1. Development of the World Automotive Market by Segments (2012-2028)**

Source: TEPAV,2013

Compared with the 27 EU member states, Turkey ranks sixth in total production, first in light commercial vehicles, second in buses, seventh in trucks, and eighth in automobiles (Graphic.2).

The expectation that the share of commercial vehicles will increase in near future is regarded as an advantage for Turkey since it is well ahead in this segment.



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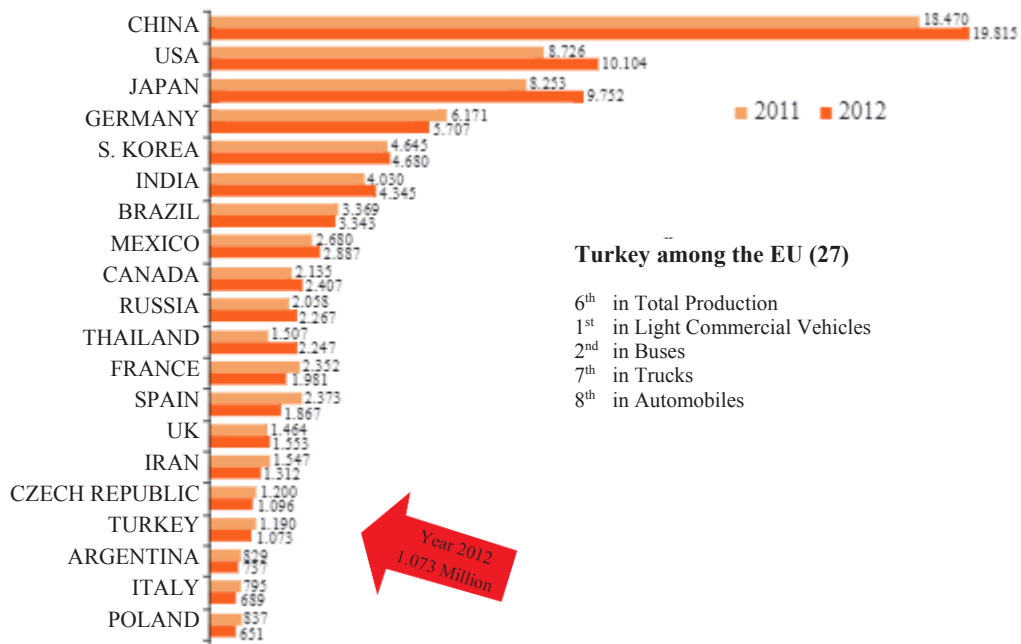
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Graphic 2. Place of Turkey in Global Production (2012)

Source: <http://docplayer.biz.tr/124153-T-c-kalkinma-bakanligi-otomotiv-sanayi-calisma-grubu-raporu.html>

An examination of the domestic and imported vehicles in Turkey shows that there are more imported vehicles (Graphic.3).

The automotive industry in Turkey exhibits clustering in the Anatolian part of Istanbul and the Eastern Marmara Region. The Turkish automotive industry is made up of 15 companies and 18 factories, ranking the 17th in the world with the 1,072,978 vehicles it produced in 2012.



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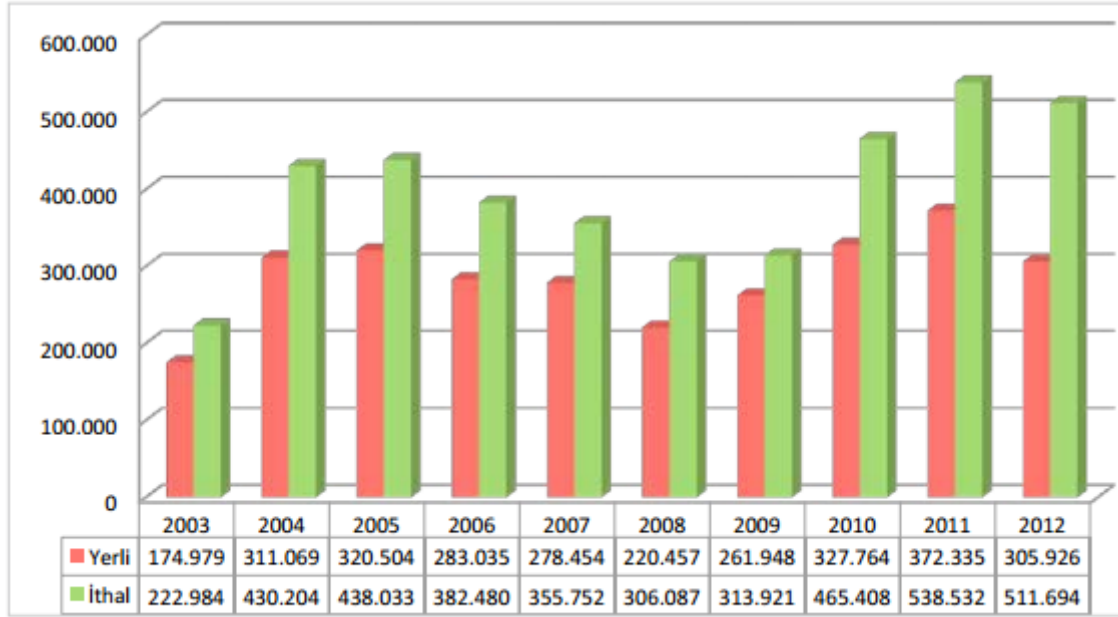
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**Graphic 3. Graphic Comparing the Domestic and Imported Vehicles in the Turkish Automobile Market (2003 -2012)**

Source: <http://www.tobb.org.tr/Documents/yayinlar/2014/20140127-OtomobilSektoru-Raporu.pdf>

The sector manufacturing the road vehicles and the parts used in their production is the one that is most highly influenced by shrinking demand in the domestic market, and it

is the first sector to get hit by the periods of crisis; it is also quite sensitive to the growth rates. Turkey has achieved big developments in this sector since 1960s. Especially after 1990s, the mutual agreements with the leading automotive companies of the world made Turkey a production and export base for foreign brands.



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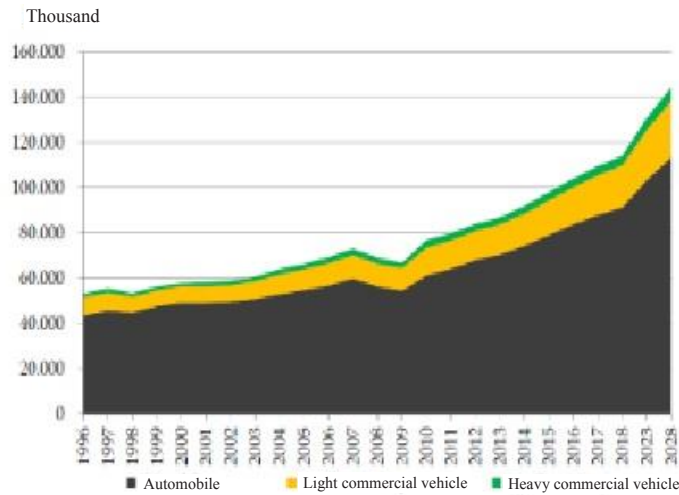
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**Graphic 4. Development of Road Motor Vehicles in Turkey (2002-2012)**

**Source:** <http://www.rekabet.gov.tr/File/?path=ROOT%2F1%2FDocuments%2FSayfalar%2Fmotorlutas%C4%B1t.pdf>

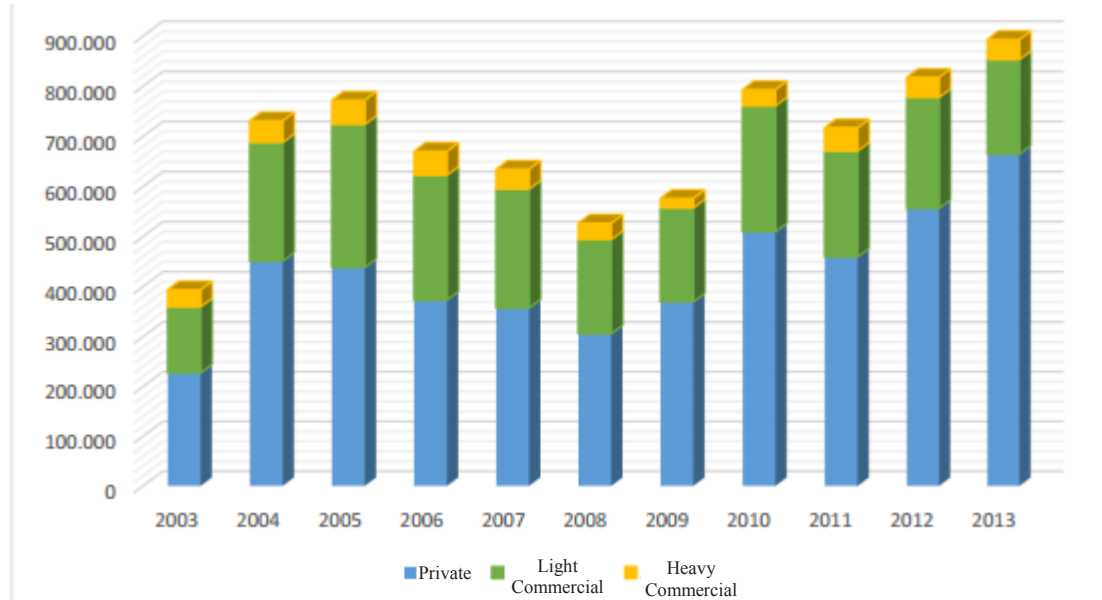
Graphic.4 indicates that the total number of vehicles in traffic increased from 6,236,344 in 2002 to 12,062,014 in 2012.

Consumers make their highest lump purchase in the automotive industry following the housing purchases. Since the costs of maintenance-repair, spare parts, and service also constitute a significant amount, consumers prefer more often the consumer-oriented companies that have widespread and efficient distribution networks.





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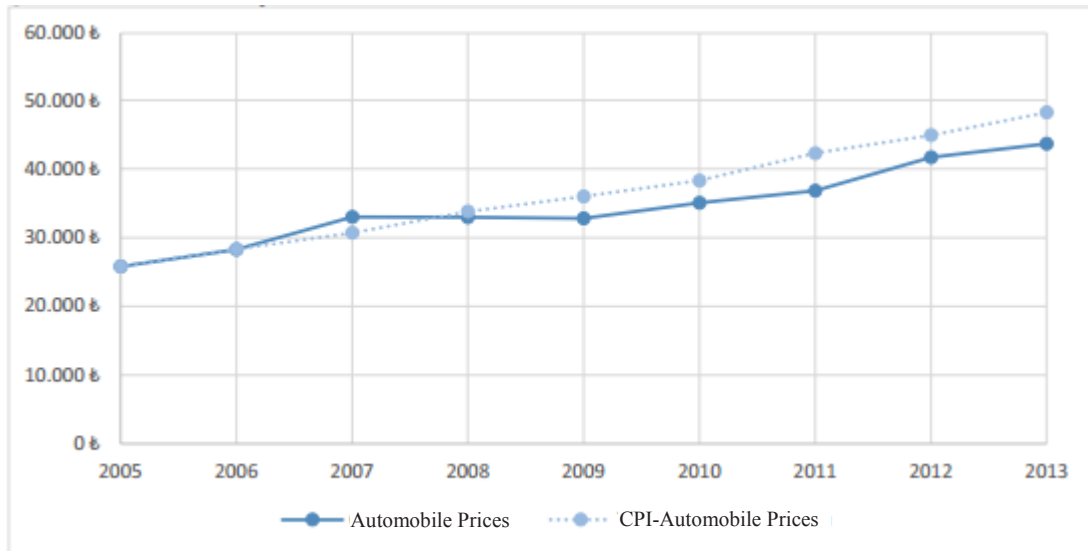
*Graphic 5. Distribution of Sales by Vehicle Segments (2003-2013)*

*Source:* <http://www.rekabet.gov.tr/File/?path=ROOT%2F1%2FDocuments%2FSayfalar%2Fmotorlutas%C4%B1t.pdf>



On average, 62 percent of the vehicles sold within the automotive industry in 2013 were private cars while 32 percent were light commercial vehicles and 6 percent were heavy commercial vehicles. This distribution is shown in Graphic.5.

The direction of price changes in the sector is an important indicator of the competition between companies. As shown in Graphic.6, the automobile prices have increased slower than the increase in inflation since 2005; that is, automobile prices did not increase in real terms. There are also differences between the regions in terms of vehicle sales price.



**Graphic 6. Development of Automobile Prices (2005-2013)**

**Source:** <http://www.rekabet.gov.tr/File/?pat h=ROOT%2F1%2FDocuments%2FSayfalar%2Fmotorlutas%C4%B1t.pdf>



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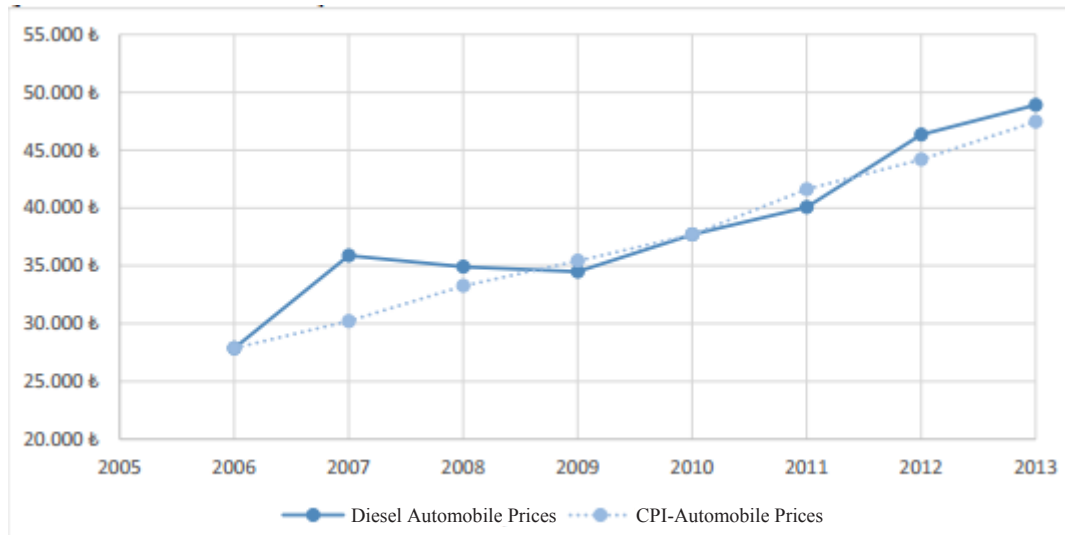
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**Grafik 7. Development of Diesel Automobile Prices (2005-2013)**

**Source:** <http://www.rekabet.gov.tr/File/?path=ROOT%2F1%2FDocuments%2FSayfalar%2Fmotorlutas%C4%B1t.pdf>

Diesel automobile prices followed a course in line with inflation; there was no considerable real increase in the prices. Brand-based price changes in some gasoline vehicles were slower than the increase in inflation (Graphic.7)

### **RESEARCH METHOD**

This research was conducted on the basis of the data from TurkStat-Press Release / Road Motor Vehicles. The variables were determined for the period of 2002-2015.

### **Data Analysis**

The data obtained in this study were analyzed through the E-Views 8.0 software. The factors affecting the sales to the greatest extent

were determined through regression and correlation analyses.

### **Research Hypotheses**

- ✓ **H<sub>0</sub>:** Total vehicle sales do not exhibit a certain trend.
- ✓ **H<sub>0</sub>:** Automobile sales do not exhibit a certain trend.
- ✓ **H<sub>0</sub>:** Bus sales do not exhibit a certain trend.
- ✓ **H<sub>0</sub>:** Minibus sales do not exhibit a certain trend.
- ✓ **H<sub>0</sub>:** There is no causality between the distribution by fuel types and the automobile sales.
- ✓ **H<sub>0</sub>:** Automobile sales by fuel types are independent.



**REGRESSION ANALYSIS**

**H0:** Total vehicle sales do not exhibit a certain trend.

According to the model predicting how the total vehicle sales change by year and how it will be in the future years, the total vehicle sales will increase by 2.1 million per year.

**Table 1. Total Vehicle Sales Regression**

Dependent Variable: TOTAL  
 Method: Least Squares  
 Date: 06/25/15 Time: 22:37  
 Sample: 2004 2015  
 Included observations: 12

Variable	Coefficient	Std. Error	t-Statistic	Prob.
@TREND	2177873.	256218.4	8.500065	0.0000
R-squared	-2.746780	Mean dependent yes		14910561
Adjusted R-squared	-2.746780	S.D. dependent yes		2977532.
S.E. of regression	5763491.	Akaike info criterion		34.05164
Sum squared resid	3.65E+14	Schwarz criterion		34.09205
Log likelihood	-203.3098	Hannan-Quinn criter.		34.03668
Durbin-Watson stat	0.056815			

**H0:** Automobile sales do not exhibit a certain trend.

will be in the future years, the automobile sales will increase by 1.1 million per year.

According to the model predicting how the automobile sales change by year and how it



**Table 2. Automobile Sales Regression**

Dependent Variable: AUTOMOBILE

Method: Least Squares

Date: 06/25/15 Time: 22:45

Sample: 2004 2015

Included observations: 12

Variable	Coefficient	Std. Error	t-Statistic	Prob.
@TREND	1116065.	128198.1	8.705787	0.0000
R-squared	-2.257500	Mean dependent yes		7603005.
Adjusted R-squared	-2.257500	S.D. dependent yes		1597771.
S.E. of regression	2883744.	Akaike info criterion		32.66673
Sum squared resid	9.15E+13	Schwarz criterion		32.70714
Log likelihood	-195.0004	Hannan-Quinn criter.		32.65177
Durbin-Watson stat	0.058766			

**H0:** Bus sales do not exhibit a certain trend.

According to the model predicting how the bus sales change by year and how it will be in

the future years, the bus sales will increase by 27 thousand per year.



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**Table 3. Bus Sales Regression**

Dependent Variable: BUS

Method: Least Squares

Date: 06/25/15 Time: 22:46

Sample: 2004 2015

Included observations: 12

Variable	Coefficient	Std. Error	t-Statistic	Prob.
@TREND	27672.58	4144.168	6.677476	0.0000
R-squared	-13.214908	Mean dependent yes	199237.5	
Adjusted R-squared	-13.214908	S.D. dependent yes	24725.24	
S.E. of regression	93220.75	Akaike info criterion	25.80298	
Sum squared resid	9.56E+10	Schwarz criterion	25.84339	
Log likelihood	-153.8179	Hannan-Quinn criter.	25.78802	
Durbin-Watson stat	0.067130			

**H0:** Minibus sales do not exhibit a certain trend.

According to the model predicting how the minibus sales change by year and how it will be in the future years, the minibus sales will increase by 52 thousand per year.



**Table 4. Minibus Sales Regression**

Dependent Variable: MINI

Method: Least Squares

Date: 06/25/15 Time: 22:49

Sample: 2004 2015

Included observations: 12

Variable	Coefficient	Std. Error	t-Statistic	Prob.
@TREND	52747.75	8232.999	6.406870	0.0001
R-squared	-27.673342	Mean dependent yes	384271.5	
Adjusted R-squared	-27.673342	S.D. dependent yes	34585.51	
S.E. of regression	185196.7	Akaike info criterion	27.17588	
Sum squared resid	3.77E+11	Schwarz criterion	27.21629	
Log likelihood	-162.0553	Hannan-Quinn criter.	27.16092	
Durbin-Watson stat	0.053858			

**GRANGER CAUSALITY TEST**

**H0:** There is no causality between the distribution by fuel types and the automobile sales.

According to the examination of the causality between the variables, it was determined that some prob values were smaller than 0.05

and that the H0 hypothesis must be rejected. Therefore, there seems to be a causal relation.

- There is a causality between the automobile sales and the LPG sales.
- There is a causality between the automobile sales and the diesel sales.



- There is a causality between the automobile sales and the gasoline sales.

**Table 5. Granger Causality Analysis**

Pairwise Granger Causality Tests

Date: 06/25/15 Time: 22:57

Sample: 2004 2015

Lags: 2

Null Hypothesis:	Obs	F-Statistic	Prob.
LPG does not Granger Cause AUTO	10	5.83694	0.0492
AUTO does not Granger Cause LPG		13.5792	0.0095
DIES does not Granger Cause AUTO	10	5.45997	0.0553
AUTO does not Granger Cause DIES		8.06674	0.0272
GASO does not Granger Cause AUTO	10	10.6170	0.0159
AUTO does not Granger Cause GASO		3.39201	0.1173

**H0:** Automobile sales by fuel types are independent.

According to the examination of the automobile sales by fuel types; the gasoline-fueled automobile sales influence total automobile sales by 2.17 units, LPG-fueled automobile

sales influence the total automobile sales by 2.63 units, and the diesel automobile sales influence the total automobile sales by 4.15 units.





**Table 6. Fuel Type regression**

Dependent Variable: AUTO

Method: Least Squares

Date: 06/25/15 Time: 23:08

Sample: 2004 2015

Included observations: 12

Variable	Coefficient	Std. Error	t-Statistic	Prob.
BENZ	2.179351	0.218925	9.954791	0.0000
R-squared	-1.567904	Mean dependent yes	7603005.	
Adjusted R-squared	-1.567904	S.D. dependent yes	1597771.	
S.E. of regression	2560377.	Akaike info criterion	32.42886	
Sum squared resid	7.21E+13	Schwarz criterion	32.46927	
Log likelihood	-193.5732	Hannan-Quinn criter.	32.41390	
Durbin-Watson stat	0.072191			

Dependent Variable: AUTO

Method: Least Squares

Date: 06/25/15 Time: 23:09

Sample: 2004 2015

Included observations: 12



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Variable	Coefficient	Std. Error	t-Statistic	Prob.
LPG	2.639678	0.160955	16.40012	0.0000

R-squared	-0.009848	Mean dependent yes	7603005.
Adjusted R-squared	-0.009848	S.D. dependent yes	1597771.
S.E. of regression	1605619.	Akaike info criterion	31.49557
Sum squared resid	2.84E+13	Schwarz criterion	31.53598
Log likelihood	-187.9734	Hannan-Quinn criter.	31.48061
Durbin-Watson stat	0.083358		

Dependent Variable: AUTO

Method: Least Squares

Date: 06/25/15 Time: 23:19

Sample: 2004 2015

Included observations: 12

Variable	Coefficient	Std. Error	t-Statistic	Prob.
DIES	4.157505	0.476176	8.731022	0.0000

R-squared	-2.241068	Mean dependent yes	7603005.
Adjusted R-squared	-2.241068	S.D. dependent yes	1597771.
S.E. of regression	2876462.	Akaike info criterion	32.66168
Sum squared resid	9.10E+13	Schwarz criterion	32.70208



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Log likelihood	-194.9701	Hannan-Quinn criter.	32.64671
Durbin-Watson stat	0.057420		

## DISCUSSION

Since their invention, automobiles have become important technological products with new and different models in correlation with the development of the technology. Beyond being an investment, they are an important indicator of human instinct of possession. It will be relevant for manufacturing companies to adequately analyze the factors affecting the purchasing decisions of consumers and to guide their product and sales development policies in line with the preferences and expectations of consumers.

The number of automobiles per individual seems to be lower in Turkey in comparison with the developed countries and other countries in a similar income group. Major parameters such as urbanization rate, welfare level, active population, and income level have a positive effect on automobile ownership. Completion of the urbanization process, increase in the per capita income, and increase in the active population, which are expected in near future in Turkey, will be able to increase automobile ownership.

A comparative analysis of Turkey and other OECD countries in terms of the rates of

tax imposed on the automotive sector show that these rates are clearly higher in Turkey. A vast portion of public revenues is collected through the Special Consumption Tax (ÖTV), the Motor Vehicle Tax and indirect taxes, especially on oil products, all of which are directly related with the automotive industry. In addition to the mentioned indirect tax revenues, the automotive industry also makes significant contributions to direct tax revenues such as income tax and corporate tax; reduction of this tax burden on the automotive industry will make a positive contribution to the increase in the production capacity. A comprehensive impact analysis is needed to reduce the tax obligations of the sector and to appropriately design the policy change in a rational way.

It is predicted that with the technological developments in the automotive industry, consumers will be inclined towards environment-friendly and fuel-efficient electric vehicles with low or no carbon emission. In many countries, exemption of highway taxes and reduction in purchasing taxes have been put into practice in order to increase the preferences for purchasing such vehicles. Reduction in ÖTV within the scope of policies



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aiming at increasing the sales capacity of environment-friendly, new-technology vehicles is expected to boost the demand for such vehicles in Turkey, too.

### **CONCLUSION and ASSESSMENT**

- The total vehicle sales will increase by 2.1 million per year.
- The automobile sales will increase by 1.1 million per year.
- The bus sales will increase by 27 thousand per year.
- The minibus sales will increase by 52 thousand per year.
- There is a causality between the automobile sales and the LPG sales. There is a causality between the automobile sales and the diesel sales. There is a causality between the automobile sales and the gasoline sales.
- The gasoline-fueled automobile sales influence total automobile sales by 2.17 units, LPG-fueled automobile sales influence the total automobile sales by 2.63 units, and the diesel automobile sales influence the total automobile sales by 4.15 units.

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## OTOMOBİL SATIŞLARINI ETKİLEYEN FAKTÖRLERİN ANALİZİ

**Öz:** Gelişmiş ya da gelişmekte olan tüm dünya ülkelerinde üretimde kullanılan girdileri, sektörler arası bağlantılar ile istihdama sağladığı katkı boyutunda otomotiv sektörü stratejik öneme sahip lokomotif bir sektör olarak kabul edilmektedir. Demir-çelikten lastiğe, camdan elektronik sanayiine, satış sonrası hizmetlerin sunulmasından ulaştırma ve bankacılık-sigorta sektörlerine kadar birçok sektör ile karşılıklı etkileşim halinde olarak talep eden konumunda olan otomotiv sektörü, savunma sanayinin önemli girdilerini üretmesinin yanı sıra hizmetler ile taşımacılık ve ulaştırma sektörlerinin de önemli girdilerini üretmektedir. ABD’de üretimi gerçekleştirilen yassı çelik, cam, kauçuk, kurşun ve yarı iletken maddelerin yüzde 25’i otomotiv sektörü tarafından talep edilmektedir. Makine ve alet endüstrisinin sürdürülebilir olması için hayati öneme sahip olan otomotiv sektörü, oldukça geniş bir ürün gamına sahiptir. Otobüs, kamyon, kamyonet, midibüs, minibüs, traktör, çekici, otomobil şeklinde başlıca ürünler olarak ifade edilen karayolu taşıt araçlarını üreten otomotiv sektörü, sahip olduğu önem itibarıyla dünyada teknolojik gelişmelerin öncelikle uygulanarak üretim tekniklerinin hızla adaptasyon sürecine girdiği ve rekabetin en yoğun yaşandığı sanayilerden birisidir. Uluslararası rekabetin giderek yoğunluk kazanması ile otomotiv sektöründeki firmalar üretimlerinin bir bölümünü ana karalarının dışındaki coğrafyalarda gerçekleştirmektedirler. Bilim Sanayi ve Teknoloji Bakanlığı’nın hazırladığı 2013 Yılı Otomotiv Sektör Raporu’na göre; yaklaşık 2 Trilyon Euro cirosu, Ar-Ge ve üretim kapsamı olarak 85 milyar Euro’luk yatırım harcaması, yatırım yapılan ülkelerde 433 milyar Euro’dan daha fazla vergi geliri sağlanması ile otomotiv sektörü dünyanın en büyük yatırımlarını bünyesinde barındırmaktadır. Otomotiv sektörünün AB’de doğrudan istihdama katkısı 2.2 milyon kişi ve dolaylı istihdamla birlikte 9.8 milyon kişidir. Bu verilere sahip bir ülke ekonomisi olarak konuya bakıldığında dünyanın altıncı büyük ekonomisine sahip bir ülke görüntüsü vermektedir. Sektörün ileriye yönelik bağlantı etkisinin kuvvetli olması, yerli ve yabancı araçlar arası ikame esnekliğinin yüksek olması, sektörün ilgi alanına giren her parametrenin cari işlemler dengesini direkt etkileyen boyutta olması nedenleri başta olmak üzere sanayileşme gayretinde olan bir ekonomi için kilit sektörlerden birisi otomotiv sektörü olarak değerlendirilmektedir. Karayolu taşıt araçları ile bu araçların üretiminde kullanılan parçaları imal eden sektör, iç pazarda meydana gelen talep daralmasından en çok etkilenen sektör olarak kriz ve durgunluk dönemlerinde ilk darbeyi alan sektör olarak büyüme oranlarına karşı son derece duyarlıdır. 1960’lı yıllardan itibaren Türkiye’de önemli mesafeler kaydedilen sektörde özellikle 1990’lı yıllardan sonra dünyanın marka otomotiv firmalarıyla yapılan ortak çalışmalarla Türkiye yabancı markaların adeta üretim ve ihracat üssü konumuna getirilmiştir. 1990’lı yıllardan



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başlayarak her yıl düzenli bir şekilde yüzde 25 düzeyinde otomotiv sektörünün ana ve yan sanayi başlıklarında gerçekleştirilen yatırımlar yanısıra teknolojik yenileme, yeni model çalışmaları ve Ar-Ge çalışmalarının hız kazandığı bu bağlamda 2002 yılında 1.021.000 adet olan motorlu taşıt yıllık üretim kapasitesi, 2007 yılında 1.317.000'e, 2012 yılında ise 1.638.000 adede ulaşmıştır. Otomobilden çeşitli amaçlarla fayda sağlamaya çalışan bireyler, aracı kullanmanın yanısıra statü kazanmak, gösteriş, prestij, yenilik, özgürlük, yaşamın kolaylaşması amaçlarıyla da otomobil satın almaktadırlar. Bireyin satın alma davranışlarını en fazla hangi parametrenin neyin etkilediği veya etkilemediği dikkate alındığında marka tercihinde aile unsurunun öncelikli etken olduğu gelir, meslek, eğitim gibi sosyal sınıflarında otomobil alımında marka tercihinin belirleyen diğer unsurlar olarak karşımıza çıktığı görülmektedir. Otomobil kullanmanın getirdiği fayda dolayısıyla bu anlamda duyulan ihtiyaç satın alma davranışını tetikleyen ilk aşamadır. Otomobilin fiyatı kısa vadede satın alma kararını etkileyen en önemli parametredir. Yakıt ve tamir gibi değişken olmakla birlikte kullanım masraflarının tek başına çok da etkili olmadığı, orta vadeli perspektifte yakıt kullanımı tasarruflu olan araçlara yönelimin olduğu, değişken masraflardan daha ziyade araç üzerindeki vergi, sigorta şeklindeki sabit masrafların talep üzerindeki etkisinin daha yoğun olduğu dikkat çekmektedir. Yeni otomobillerin nispeten daha pahalı olması eski modellere ilgi duyulmasını beraberinde getirmekte bu durum da eski modellerin kullanımını arttırmakta ve hurdaya çıkma yaşını büyütmektedir. Bütün bu unsurların yanı sıra Türkiye'de karar mekanizmalarının ithalat politikaları, ücret artışları, yatırımlara uygulanan teşvik tedbirleri, kredi faiz oranlarındaki değişim şeklindeki makro ekonomik kararlar otomobil sektöründeki arz talep dengesinde ani değişimler yaşanmasına sebep olabilmektedir. Belirtilen parametreler dikkate alındığında uzun vadeli satış tahminleri yapılması zorlaşmakta ve talebe dair perspektiflerde revizyona gidilme ihtiyacı doğabilmektedir. TUIK-Haber Bulteni / Motorlu Kara Taşıtları verileri baz alınarak 2002-2015 arasındaki dönem için belirlenen değişkenler incelenmiş ve araştırmadan elde edilen veriler E-Views 8.0 programı ile analiz edilerek regresyon ve korelasyon analizleri sonucunda işgücünü en çok etkileyen faktörler belirlenmiştir. Buna göre her yıl toplam araç satışında bir önceki yıla göre 2.1 milyonluk bir artış gerçekleşirken bunun otomobil satışlarında 1.1 milyon, otobüs satışlarında 27bin, minibüs satışında 52bin düzeyinde artışla gerçekleşeceği, benzinli otomobil satışlarının toplam otomobil satışlarını 2,17 birim etkilediği, LPG'li otomobil satışlarının toplam otomobil satışlarını 2,63 birim etkilediği, dizel otomobil satışlarının toplam otomobil satışlarını 4,15 birim arttırdığı bildirilmektedir.

**Anahtar Kelimeler:** Karayolu Taşıt Araçları, Otomotiv Ana Sanayi, Otomotiv Yan Sanayi, Dizel